

Occasional Paper

Dynamics of Earned Income in Australia

**An Application Using the
1994–1997 Survey of Employment
and Unemployment Patterns**



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An Application Using the 1994–1997 Survey of Employment and Unemployment Patterns

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INQUIRIES

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PREFACE

This occasional paper has been written by Annie Carino-Abello, David Pederson and Anthony King of the National Centre for Social and Economic Modelling, University of Canberra, under the auspices of the Survey of Employment and Unemployment Patterns Research Fellowship scheme. This scheme has been established to facilitate high quality analysis of the survey data by researchers who have experience in the analysis of longitudinal data and an in-depth understanding of labour market issues and operations.

The paper describes the extent and pattern of movement in earnings revealed by the SEUP data, including the association of earnings dynamics with labour market status and the level of earnings. The paper then goes on to use regression equations to model weekly earnings. The regression models used relate annual changes in earnings to a number of personal and labour market related characteristics.

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SYNOPSIS

A study of the dynamics of earned income is important for two basic reasons. First, it elaborates our picture of the labour market, providing the framework for looking at the distribution of earnings in greater depth, and providing inputs to policy development. Second, it is an input into modelling earnings dynamics, an area of growing interest in Australia.

This paper provides new evidence about how people's earnings in Australia changed from year to year over the mid-1990s. The study was based on data from the Survey of Employment and Unemployment Patterns (SEUP), a longitudinal survey covering the period September 1994 to September 1997. Data for this survey were collected in three waves, in 1995, 1996 and 1997. This unique data set enabled us to track the pattern of people's earnings on an annual basis and to relate the pattern of changes in earnings to personal characteristics such as sex, marital status, educational attainment and current and historical information on their work and earnings.

The first part of the report describes the mobility of earnings of the general population based on usual weekly earnings. Overall we find a general stability in earnings across all earnings deciles. Despite the fact that most people changed their earnings decile, 70–90% of people in each decile experienced an earnings shift of one decile or less (stayed in their current decile or moved to an adjacent decile). While there appears to be more variability in earnings among those on middle incomes relative to those at the upper and lower range of the distribution, this is due to the fact that the decile classes are narrow at middle incomes and wide at the income extremes.

Focusing on individuals at different points of the earnings distribution, we find a strong relationship between transitions to and from lower earnings and movements in and out of work. While this analysis of earnings mobility was restricted to respondents who were wage and salary employees at each date the data were collected, this does not preclude their being out of work at points in between. This is particularly the case for those in the lowest three earnings deciles. To focus on moves in and out of this broad sector of the earnings distribution, we defined the respondents falling in the bottom 3 deciles as the “low earnings group” and the remainder as the “higher earnings group” for every wave. Based on this definition, we looked at the pattern of changes in earnings over the three years for which data are available. Of the total sample of the general population, 9% had persistently low earnings while 72% had persistently higher earnings. Correspondingly, 28% of the general population had low earnings at least once over the three-year period.

Looking at the characteristics of the different earnings groups, we find that relative to the overall sample: (a) those with persistently low earnings have greater proportions of persons who are female, are part-time workers, have not completed secondary school, are unmarried,

SYNOPSIS *continued*

have less than excellent English speaking ability, have an employment handicap, and are working at middle and lower level clerical or transport and production occupations; (b) for those making a transition from low to higher earnings, there were changes associated with movement from part-time to full-time work, improvement in educational attainment, and changes in industry and occupation; and (c) for those making a transition from higher to low earnings, the most apparent changes were those from full-time to part-time work, and movement to lower level occupations.

In the second part of the report, earnings equations were estimated. Separate models were run for those who were employed in the previous period (transition groups 1 to 4) and those who were not (transition groups 5 to 8). Regressions were run for both the Population Reference Group and Jobseekers. We find that, generally, the coefficient estimates reflect what might be expected of a human capital model, and the equations have a good fit, explaining between 54% and 80% of the variance of log weekly earnings for the Population Reference Group, and between 49% and 67% for Jobseekers.

A key finding is that the effect of previous year's earnings on current earnings varies on one's earnings level as well as transition type. Generally, for those remaining in full-time work and with earnings below the middle of the range, we find no systematic relationship between current and previous year's earnings. In contrast, for individuals remaining in full-time work and with earnings in the middle and upper ranges, we find a positive relationship. Finally, for those remaining in part-time work, the relationship between current and previous year's earnings is positive at all earnings levels. The foregoing results hold true for both males and females, regardless of whether one is from the general population or a Jobseeker, and has implications concerning earnings stability for workers in various categories of employment and earnings.

The availability of actual data on labour market experience enabled us to estimate returns to experience for the pooled group of males and females. (If we had used imputed instead of actual years of experience, there would have been a need to allow for differences by sex, to take account of possible discontinuity in years in paid work particularly for females.) The coefficients on years in paid work are positive and show increasing returns with additional years of experience. Correspondingly, returns to years spent looking for work and not in the labour market are negative — the longer one stays in either of these two labour market states, the lower one's earnings.

The results with respect to occupation, multiple jobs, educational attainment, English-speaking proficiency, employment handicap and marital status are as expected. Relative to the benchmark group and taking all other factors constant, higher earnings accrue to individuals at higher occupation levels, those with multiple jobs, those with post-school qualifications, those with high levels of English-speaking proficiency, those with no employment handicap, and to unmarried (relative to married)

SYNOPSIS *continued*

females. Those working in the public sector receive higher returns than those in the private sector, and the same holds true for those working in the manufacturing industry relative to those in agriculture and services, all other factors constant.

The foregoing findings enhance our knowledge of the dynamics of earned income and factors that affect the distribution of earnings. The results of the study can also serve as an input to modelling earnings dynamics in general, and for validating current models on the dynamics of earned income in Australia. Finally, the findings from these and other SEUP studies highlight the importance of the availability of longitudinal data over a reasonable length of time to enable analysis that would otherwise not be possible.

SECTION 1

SCOPE OF THE STUDY

INTRODUCTION

This report examines the earnings dynamics of the Australian population aged 15–59 years, using the data from the Survey of Employment and Unemployment Patterns (SEUP) conducted by the Australian Bureau of Statistics (ABS).

The SEUP is a longitudinal survey with information collected from the same individuals over three annual waves of interviews. These interviews were conducted in 1995, 1996 and 1997. For each wave, information was sought on a person's current circumstances and on their labour market activities over the previous 12 months — this retrospective information included characteristics such as degree of labour market participation, income and earnings, industry, occupation and sector of employment. The full survey provides longitudinal data covering the period from 5 September 1994 to 31 August 1997.

Before the undertaking of the SEUP, analyses of Australian earnings dynamics were constrained by the availability of only very limited panel data. The ABS Income Surveys, through their collection of earnings information at the time of interview and for the previous financial year, have a limited longitudinal element and this has been used by Baekgaard (1999) in an examination of earnings dynamics. Full labour force longitudinal data have, however, only been available for certain sub-groups of the population. These include, for example, youth — covered by the Longitudinal Surveys of Australian Youth research programme and its predecessors: the Australian Youth Survey and the Australian Longitudinal Survey (Miller and Volker, 1987; Kryger 1990; Gregory and Karmel 1992), and recent immigrants — covered by the Longitudinal Study of Immigrants to Australia (Williams, Murphy and Brooks 1997).

With the availability of SEUP data, the investigations and literature on Australian earnings dynamics are now expanding. Besides the analysis conducted by the ABS, the SEUP data is being used by a number of researchers. For example, recent work which is related to the topic of this report includes the use by Stromback, Dockery and Ying (1997, 1998) of the SEUP 'Jobseekers' sample to evaluate the effect of labour market programs, and to model labour market transitions, the probability of working, and earnings. There is also work by Dunlop (2000) on the experiences, fortunes and characteristics of low wage earners in Australia. The analysis reported here follows and builds on a study of labour market transitions using SEUP data by the same authors (Carino-Abello, Pederson and King 2000).

OUTLINE OF THE STUDY

The findings from the study are presented in sections 2 and 3. Section 2 describes the extent and pattern of movement in earnings revealed by the SEUP data, including the association of earnings dynamics with "labour market status" and the level of earnings. Section 3 then presents the estimation of regression equations for use in modelling earnings dynamics. The regression models are simply estimates of earnings although, through their inclusion of earnings one year previously as a

OUTLINE OF THE STUDY

continued

key independent variable, they relate annual changes in earnings to a number of personal characteristics. Importantly, these estimations are conducted within a framework of annual changes in labour market status that will, of course, have a major impact on earnings dynamics.

Before proceeding with the presentation of study findings in sections 2 and 3, it is necessary to provide some further details about the use of the SEUP data in this study. This is done in the remainder of this section.

THE SAMPLE

- SEUP subgroups The SEUP sample comprises three subgroups which are listed below, with their Wave 1 sample sizes in parentheses.
- Jobseekers — people who in May 1995 were either looking for work, marginally attached to the labour market, or underemployed (N = 5488).
 - The Population Reference Group — a random sample of the population aged 15–59 years (N = 2311).
 - Labour Market Program Participants — people who had commenced a subsidised employment placement or labour market training program between July 1994 and February 1995 (N = 1019).

Given that our concern is to investigate earnings dynamics across the whole population, we use both the Population Reference Group (PRG) and Jobseeker subgroups. We focus on the earnings dynamics of employees, as distinct from the self-employed and employers. The earnings information for the latter two groups is more limited and the extent to which they could be included in the analysis is accordingly constrained. Note that employees represent the overwhelming majority (85%) of Australia's working population (ABS 1998a, p.46).

- Accounting for attrition In weighting the PRG and Jobseeker subgroups, account was taken of the significant effects of attrition on the sample (for example, 14% of the overall sample was lost between wave 1 and wave 3). This weighting ensured that the total population estimate remained constant over the three waves.

- Excluding full-time students The PRG subgroup is not large and it was with some reluctance that we further reduced the sample. Those respondents who were attending school or who were studying full-time were excluded from the sample for the wave in which they were studying or in school. The reason for doing this is because we believe moves from full-time education into the labour market are different from other moves in the labour market. As a consequence we therefore believe that the effect of these moves on earnings would also be different. With the sample size not large enough to treat students separately, it was decided to exclude students and focus on other moves into the labour market¹.

1 One other option was to treat students in full-time education as a separate labour market state, however as the sample size for this category was quite small we did not expect to get significant results.

Excluding full-time students *continued* From table 1.1, the effect of the exclusion of full-time students from the PRG and Jobseeker group is to reduce the sample size by between four and seven percent for each wave. Note that, after the exclusion of students, the ABS longitudinal weights no longer give a constant estimated population total and adjusted weights were used as described later in this section.

1.1 SAMPLE AND POPULATION SIZE

	Wave 1	Wave 2	Wave 3
Population Reference Group (PRG)			
Full sample			
Sample size	2 311	2 120	1 983
Weighted population estimate ('000's)(b)	11 050.5	11 050.5	11 050.5
Excluding those in school or studying full-time(a)	—	—	—
Sample size	2 145	2 007	1 897
Weighted population estimate('000's)(b)	9 957.5	10 227.9	10 319.3
Jobseeker Group			
Full sample			
Sample size	5 488	4 779	4 261
Weighted population estimate('000's)(b)	875.1	875.1	875.1
Excluding those in school or studying full-time(a)	—	—	—
Sample size	5 122	4 564	4 081
Weighted population estimate ('000's)(b)	816.7	834.5	835.4

(a) As at 31 August 1995, 1996 and 1997.
(b) Using ABS longitudinal weights.
— nil or rounded to zero (including null cells)

Sample limitations With our exclusion of full-time students and those who are not employees, and with the upper age limit on the SEUP sample, the study does not cover earnings dynamics across the whole population. The components not covered are thus:

- earnings dynamics for the self-employed and employers;
- earnings changes associated with full-time students; and
- earnings changes experienced by people aged 60 years and over.

Adjustment of weights The weights attached to each respondent in the SEUP sample allow the generation of population estimates. As noted above, the ABS has calculated longitudinal weights for the SEUP data that take into account the representativeness of each respondent as well as the issue of sample attrition. The way in which these weights were used in this analysis, including adjustment of the weights required by our exclusion of full-time students, is described below.

For analysis of data on a per wave basis, the ABS weights associated with each wave were used for each wave's data. Apart from this, two other sets of weights were used, depending on the nature of the analysis. First, the analysis used to describe transitions through all three waves required a common set of weights across the waves. For this purpose, we used the Wave 3 longitudinal weights calculated by the ABS. Secondly, for the

Adjustment of weights
continued

estimation of regression equations in Section 3 when the data were combined across waves, the ABS longitudinal weights were adjusted to give a constant estimated population total for the SEUP subgroups excluding students. Taking the PRG subgroup as an example, after the exclusion of students, the sum of the ABS longitudinal weights increased from 9,957,500 in Wave 1 to 10,227,900 in Wave 2 to 10,319,300 in Wave 3. If these weights had been used when the data were combined across waves, the Wave 1 data would have been given lower overall weight than the Wave 2 data and similarly for the Wave 2 data relative to the Wave 3 data. To address this problem, the Wave 1 weights were taken as given, with the Wave 2 and Wave 3 weights then reduced by factors calculated from the estimated population totals shown in the last row of table 1.1². As a consequence, the sum of the adjusted weighted population for each wave was equal to the Wave 1 figure of 9,957,500. In effect, the Wave 1 population was taken as the reference population for the purpose of combining data across waves.

When data were combined across the three waves in this part of the analysis, the adjusted weights for the three waves were amalgamated to produce a single weight variable.

THE EARNINGS VARIABLES

Choice of earnings variable

The SEUP data include a number of alternative measures of earnings. For a start, earnings measures relating to different periods can be constructed from the SEUP data. We could, for example, look at hourly earnings or weekly, monthly or annual earnings. We chose to conduct the analysis on the basis of weekly earnings — a commonly used indicator of earnings. Changes in weekly earnings can, of course, result from changes in both the level of hourly earnings and the number of hours worked, and earnings analyses often seek to distinguish these components. In practice, however, and particularly for individuals working full-time and the self-employed, there is often only a loose relationship between weekly earnings and actual hours worked. By controlling for labour market status and distinguishing between those who are working full-time and part-time, we take account of much of the variability in weekly earnings due to a difference in hours. Otherwise, it should be noted that the observed changes in weekly earnings will reflect any changes in hours worked and in the hourly wage rate.

Two main concepts of weekly earnings are available from the SEUP data. These are current weekly earnings (CWE) and usual weekly earnings (UWE). The basic conceptual difference between the two measures is that, while UWE records someone's average or usual weekly earnings, CWE records the actual earnings during the interview week. CWE will thus include the impact of anything unusual such as an unusual amount of paid overtime or leave without pay. Besides this basic difference, there

² A factor of 0.973565 (9,957,525/10,227,900) was applied to the Wave 2 weights, and of 0.964943 (9,957,525/10,319,286) to the Wave 3 weights.

Choice of earnings variable
continued

are a number of technical differences that may be important in our choice of earnings measure for this study.

- Information on CWE was obtained with respect to people's earnings at the time of each interview. CWE data is thus available for three points in time over the SEUP period. In contrast, information on UWE was collected as part of the retrospective questioning about their labour market activities over the previous 12 months. As such, UWE can be derived for any point in the SEUP period.
- Related to the above, UWE data can be obtained for points which are separated by a constant interval — such as every three, six or twelve months, while CWE is only available for points which are roughly 12 months apart (as each person was not interviewed on the same date each year).
- The CWE data is available both for employees and the self-employed. UWE data is only available for employees.
- More variables can be associated with the UWE than with the CWE measure, particularly those on work characteristics such as occupation, and industry and sector of occupation.
- CWE is available as a continuous variable with exact dollar amounts. UWE, on the other hand, is available in grouped form with 29 categories³.

Clearly, CWE and UWE each have their own strengths and weaknesses. On balance, our preference was to use the UWE measure⁴. Some technical details concerning the precise derivation from the SEUP data of the UWE measure used in this study are set out below.

Earnings and labour market
status

In the retrospective questioning, SEUP respondents were asked about their usual weekly wages and salary for each job they held during the period. During each of the last three interviews the respondents who were wage and salary earners were asked to give details of their employment history during the preceding wave. From the retrospective data it was possible to determine each person's "labour market status" on each day within a wave. In particular, for any given day, an estimate of usual weekly income from wages and salaries for all jobs held at the time and for the total number of hours worked per week could be obtained.

In analysing the data, the labour market status of each person was determined for the same point in time as the UWE data.

3 UWE was a categorical variable with 29 categories, with the first category corresponding to weekly earnings from \$1 to \$79 dollars, subsequent categories at 40 dollar intervals, and the upper open-ended category covering weekly earnings of \$1,160 or more. For this analysis the variable was transformed to a continuous scale by assuming that all observations within a particular category fell at the mid-point. In the case of the upper open-ended category, weekly earnings were set at \$1,199.

4 The results of an analysis based on the CWE measure are available from the authors on request.

- Imputation For some data records in the SEUP, information on earnings had not been provided by the respondents so values for these were imputed by the ABS. Around 1–2% of UWE values were imputed. All imputed values were excluded from the analysis.
- Real change To remove the impact of inflation on the picture of earnings dynamics, the UWE values were all converted to September quarter 1994 dollars, using the Consumer Price Index as the deflator. Thus, all the earnings figures presented in section 2 are in September quarter 1994 dollars and, likewise, the estimations reported in section 3 relate to the dynamics of real earnings.

CLASSIFICATION OF LABOUR MARKET STATUS

Labour market status is a key characteristic used in the description and analysis of earnings dynamics in this report. Respondents were classified according to their labour market status based on the following categories:

- full-time work;
- part-time work;
- looking for work; and
- not in the labour market.

In operationalising the classification of labour market status using the SEUP data, the following points should be noted:

- Full-time work was taken to be 35 hours or more per week.
- Where someone had more than one job, their full-time or part-time status was determined according to their total hours.
- The SEUP data do not directly identify unemployment in the same manner as in standard labour force statistics. Instead, because of the way the data are collected, people can be looking for work and working at the same time. In this paper we then defined looking for work to include those people who were looking for work only and were not employed at the same time.

SECTION 2

EXTENT AND PATTERN OF EARNINGS MOBILITY

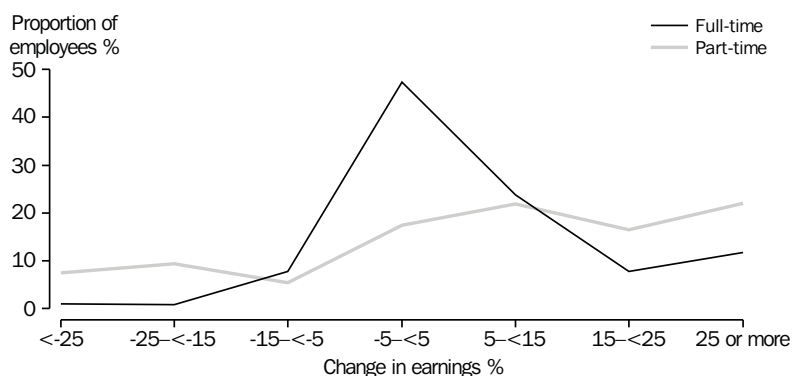
In this section, we describe the extent and pattern of earnings dynamics revealed by the Population Reference Group. After presenting an overall picture of the extent of earnings mobility among full-time and part-time employees, the association of earnings mobility with labour market status and the level of earnings is then examined.

THE EXTENT OF EARNINGS MOBILITY

An obvious source of a change in someone's earnings would be a change in their labour market status — the greater the extent of change in labour market status the greater the effect on earnings. For example, someone changing their labour market state from looking for work to full-time work would be expected to have a more pronounced change in earnings than someone who went from looking for work to part-time work. But what if we confine ourselves to those people who do not change their labour market status? How much movement in earnings is there?

Graph 2.1 shows the distribution of the changes in usual weekly earnings for those people who were full-time employees at the end of Wave 1 and Wave 3. We find that while close to half of the sample recorded a change in weekly earnings of less than 5%, and a further fifth of the sample recorded changes of less than 10% between September 1995 and September 1997, the remaining 33% registered changes in earnings over 10%. For those who were employed part-time at the end of Wave 1 and Wave 3 there is even more movement in earnings.

2.1 CHANGE IN USUAL WEEKLY EARNINGS FOR EMPLOYEES:
September 1995—September 1997



If we look at all employees (including those working full-time or part-time) at both Wave 1 and Wave 3, we find:

- 41% with changes in weekly earnings of less than 5%;
- 13% with changes of at least 5% but less than 10%, and;
- 46% with changes of 10% or more.

These results indicate a considerable degree of change in earnings among employees over a two-year period. Almost half experienced a change in earnings of 10% or more — up or down. These numbers closely

THE EXTENT OF EARNINGS
MOBILITY *continued*

approximate the findings of Baekgaard (1999). Although his analysis was based on a different data set and time period, he found that about half of the sample had changes in weekly earnings exceeding 10%. Baekgaard noted how this degree of movement was concealed by the seeming stability of cross-sectional earnings distributions.

THE ASSOCIATION WITH
LABOUR MARKET STATUS

We begin the examination of the pattern of earnings dynamics by looking at the role of changes in labour market status. To do so, individuals in the PRG sample are classified into five groups according to earnings and labour market status as follows:

- *High earnings* — those employed with earnings in the top 20%
- *Medium earnings* — those employed with earnings in the middle 60%
- *Low earnings* — those employed with earnings in the bottom 20%
- *Looking for work*
- *Not in the labour market*

Table 2.2 shows the pattern of movement between these five groups over one-year and two-year periods. The first row of the table, for example, shows the status after one year of those who were initially in the high earnings group. The great majority (79%) of these people maintained their high earnings position, 20% moved to a lower earnings group, and just 1% moved to a not-working group. The degree of stability is indicated by the main diagonal in the table. It is greatest, at around 80%, for those in the high and medium earnings groups and for those who are out of the labour market. The least stability is observed for those in the low earnings and looking for work groups, with just about half of these groups remaining in the same status after one year. In the case of the low earnings groups, movement is mainly into a higher earnings group, but also significantly to one of the not-working groups. About three-quarters of the movement from the looking for work group is to low or medium earnings, with the remainder moving out of the labour market.

2.2 MOVEMENT BETWEEN EARNINGS AND LABOUR MARKET GROUPS(a)

Status in first period	Status in subsequent period						
	High earnings	Medium earnings	Low earnings	Looking for work	Not in labour market	Total	
						%	'000's
<i>One-year movements(b)</i>							
High earnings	78.7	19.1	1.1	0.4	0.7	100.0	1 026.8
Medium earnings	8.4	82.2	4.2	2.6	2.5	100.0	3 235.3
Low earnings	1.1	26.3	56.1	6.9	9.7	100.0	1 006.2
Looking for work	0.7	22.5	16.2	47.2	13.4	100.0	681.3
Not in labour market	0.4	5.6	10.1	7.7	76.2	100.0	1 845.0
Total	13.1	42.8	14.6	7.6	21.8	100.0	7 794.6
<i>Two-year movements</i>							
High earnings	76.7	18.7	2.1	0.4	2.0	100.0	972.6
Medium earnings	8.5	77.2	5.9	3.3	5.1	100.0	2 959.0
Low earnings	4.0	36.5	43.8	6.2	9.6	100.0	926.7
Looking for work	0.4	31.8	13.7	36.9	17.2	100.0	637.7
Not in labour market	0.8	10.4	15.7	10.6	62.5	100.0	1 894.6
Total	13.5	42.6	14.6	7.9	21.5	100.0	7 390.5

(a) Excludes self-employed.

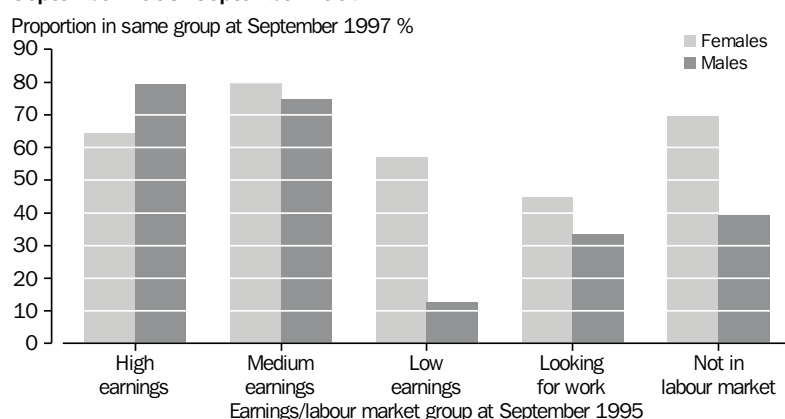
(b) Average of annual transitions between Waves 1 and 2, and Waves 2 and 3.

The lower panel of table 2.2 presents the flows over a two-year period. The pattern is very similar to that found for the one-year moves though, as would be expected, the degree of stability is somewhat lower.

Gender differences There is some difference in the broad patterns of earnings mobility for males and females as shown in graph 2.3. The graph shows the proportions of males and females in the same group after a two-year period (corresponding to the diagonal in the lower panel of table 2.2). The most striking differences are the much greater stability of females than males in the 'low earnings' and 'not in the labour market' groups. Well over half of the females in these groups (57% of those on low earnings and 70% of those not in the labour market) are still in the same group two years later, while this is the case for only 13% and 39% of males respectively.

This difference relates directly to the different pattern of labour market flows revealed by the SEUP data (Carino-Abello, Pederson and King 2000). Males exhibit slightly greater stability in their labour market status relative to females and the pattern of transitional probabilities is dominated by full-time employment and flows to and from full-time employment. For females, part-time employment and being out of the labour market are also important states, and there is greater stability in these states for females than for males. To a significant extent, these differences in the labour market transitions of males and females reflect prevailing differences in the paid employment roles of male and female members of couples. The full pattern of flows for males and females, from which graph 2.3 is drawn, is provided in table A1 in the Appendix.

2.3 STABILITY OF EARNINGS/LABOUR MARKET GROUPS(a): September 1995–September 1997



(a) Excludes self-employed

THE ASSOCIATION WITH THE LEVEL OF EARNINGS

We now examine more closely how earnings dynamics relate to the level of earnings. Is there more movement for employed people on high earnings, or for those on low earnings? This part of the analysis is, accordingly, restricted to people whose earnings were greater than zero at all points in time under examination. The picture will thus include the impact of moves between full-time and part-time employment, but not the impact of people moving between working and not working.

2.4 MOVEMENTS IN AVERAGE WEEKLY EARNINGS

	Average weekly earnings		Annual percentage change
	Wave 1	Wave 3	
	\$	\$	
Decile at end of Wave 1			
1	96	308	110.3
2	230	398	36.6
3	339	425	12.7
4	421	470	5.9
5	481	511	3.2
6	539	592	5.2
7	608	685	6.3
8	712	761	3.4
9	855	845	-0.6
10	1 105	1 044	-2.8
ALL	564	624	5.3
Decile at end of Wave 3			
1	245	125	-24.4
2	267	263	-0.8
3	361	363	0.2
4	436	446	1.2
5	438	511	8.4
6	506	574	6.7
7	554	662	9.7
8	666	761	7.2
9	761	898	9.0
10	1 011	1 101	4.5
ALL	564	624	5.3

THE ASSOCIATION WITH THE LEVEL OF EARNINGS

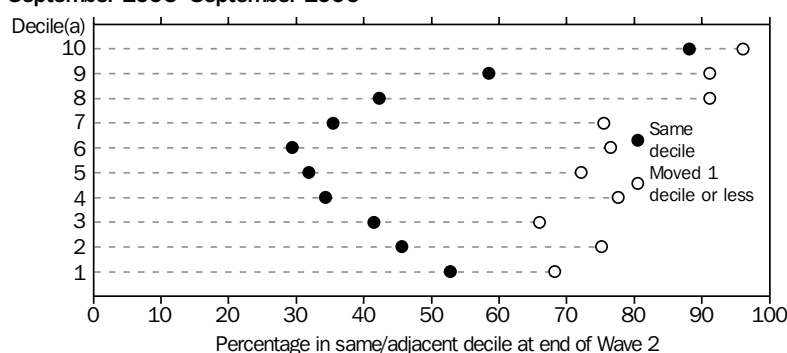
continued

In table 2.4 we look at the annual percentage change in weekly earnings with people classified by their earnings decile (decile 1 comprising the 10% of people with the lowest earnings, and decile 10 comprising the 10% with the highest earnings). The table refers to people who were employed at all three timepoints and averages the results for changes from Wave 1 to Wave 2 and from Wave 2 to Wave 3. The table shows people ranked, first, by their initial earnings decile at Wave 1 and, secondly, by their earnings decile at Wave 3. These two alternative rankings allow us to look both at where people go to and where they have come from.

The percentage change figures in table 2.4 give an indication of the general pattern of movement. The left part of the table shows that those who were in the bottom half of the earnings distribution in the first period tended to have experienced an above average increase in earnings, while those in the top half generally experienced below average changes. Similarly, the right part of the table shows that those who were in the bottom half in wave 3, on average, tended to have experienced below average changes in earnings while those in the top half experienced above average increases. A large proportion of those in the lower deciles were there due to a drop in earnings predominantly due to a shift from full-time to part-time work while a fair proportion of those at the top were there due to an increase in earnings. The increase in earnings for those at the lower deciles would be due to a number of factors, particularly shifts from part-time to full-time work and rising up the ladder at work.

A more detailed picture of movement between earnings deciles can be seen by looking at the extent of changes in the decile position of all employees between Waves 1 and 2 (see Appendix table A2). The black dots in graph 2.5 show the proportion of respondents remaining in the same decile position between the end of Wave 1 and the end of Wave 2. Across the deciles, about 30–60% of all employees stayed in the same decile over the period, though with notably high values at the upper and lower ends of the distribution where there is less scope for movement between deciles. Ignoring the extremes of the distribution, there is more variability in earnings among those on middle incomes relative to those in the upper and lower parts of the distribution. For example, of those in the sixth decile only 29% remained in this decile, whereas 42% of those in the eighth decile remained there.

2.5 DEGREE OF MOVEMENT BETWEEN EARNINGS DECILES, All Employees: September 1995–September 1996

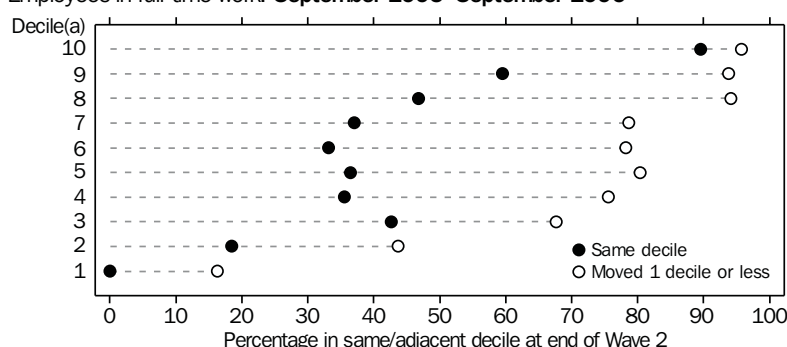


(a) Decile at end of Wave 1.

Overall, 46% of employees remained in the same decile between the two waves. Among the 54% who did change deciles, most of these moves were only to an adjacent decile. This is shown by the white dots in graph 2.5. What is also clearly illustrated by these white dots is an increase in earnings stability as the level of earnings increases. The proportion of employees remaining in the same decile or only moving to an adjacent decile after 12 months was around 70% for the lower deciles, about 75% for the middle deciles, and in the order of 90% for the upper deciles. The corresponding figures after 24 months were just slightly lower at 61%, 70% and 87% respectively (see Appendix table A3). For all employees, in general we find a positive relationship between level of earnings and earnings stability.

Note that shifts between part-time and full-time work (particularly for the lower deciles) would explain a fair proportion of the changes in earnings just described. Accordingly, we present a similar graph in graph 2.6 restricted to people who were working full-time in both waves.

2.6 DEGREE OF MOVEMENT BETWEEN EARNINGS DECILES, Employees in full-time work: September 1995–September 1996



(a) Decile at end of Wave 1.

This graph is broadly similar to graph 2.5 except for the lowest two deciles, for which the number of respondents in full-time work is relatively low. Focusing on the top eight deciles, the graph for full-time employees looks very similar to that for all employees except that the

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continued

former show slightly higher proportions remaining in the same or adjacent decile. This reflects the removal from the picture of moves between full-time and part-time employment.

In summary the picture for full-time employees — if we disregard the two lowest deciles — shows the same story as that for all employees. First, there is general stability in earnings across the earnings deciles. Despite the fact that most people changed their income decile, about 70 to 90% of people in each decile experienced an earnings shift of 1 decile or less. Second, there is a marked decrease in the degree of earnings mobility as earnings increases.

While this analysis of earnings mobility is restricted to respondents who were wage and salary employees at the wave interviews, this does not preclude their being out of work at points in between. This is particularly the case for those in the lowest three earnings deciles. To focus on moves in and out of this broad sector of the earnings distribution, we defined the respondents falling in the bottom 3 deciles as the “lower earnings group” and the remainder as the “higher earnings group” for every wave. Over the three years of the survey, we found that 9% of the general population had persistently low earnings while 72% had persistently higher earnings. Correspondingly, 28% of the general population had lower earnings at least once over the three-year period.

Of those who had lower earnings in either of the first two waves, about half had left this state by the next wave although there is some new inflow into low earnings as well.

Looking at the characteristics of the different earnings groups, we find that relative to the overall sample:

- those with low earnings at all three waves have greater proportions of persons who are female, are part-time workers, have not completed secondary school, are unmarried, have less than excellent English speaking ability, have an employment handicap, and are working at middle and lower level clerical or transport and production occupations;
- for those making a transition from lower to higher earnings in either Waves 2 or 3, these changes were associated with movement from part-time to full-time work, improvement in educational attainment, and changes in industry and occupation; and
- for those making a transition from higher to lower earnings in either Waves 2 or 3, the most apparent changes were those from full-time to part-time work, and movement to lower level occupations.

SECTION 3

MODELLING CHANGES IN EARNED INCOME

The second part of this study involves estimating regression equations which can be used to predict the earnings of Australians in the labour market. The estimation exercise basically involves the development of equations which can be used to estimate an individual's earnings at a given point in time according to a range of characteristics. Two key features of the design of the estimations are:

- the inclusion of earnings 12 months previously as an explanatory variable — which transforms the earnings equations into expressions of earnings dynamics over a 12 month period; and
- estimating the equations within a framework of people's change in labour market status.

The remainder of this section is organised in three parts. In the first part the various labour market transitions are identified. This is then followed by a description of the earnings estimation model and a discussion of the analytical techniques used. The strong effect of previous years' earnings on earnings is discussed in detail. Finally a discussion of the other factors that affect earnings is presented.

LABOUR MARKET TRANSITION GROUPS

Given the obvious and demonstrated association between earnings dynamics and labour market dynamics, the equations are estimated within a framework of labour market movement. Specifically, we estimate earnings functions for the population divided into 'transition groups' that are defined by their labour market status at two points 12 months apart. The eight transition groups identified are shown below:

3.1 LABOUR MARKET TRANSITION GROUPS

<i>Labour market status at beginning of period</i>	<i>Labour Market Status at end of period</i>	
	<i>Full-time work</i>	<i>Part-time work</i>
Full-time work	1	2
Part-time work	3	4
Looking for work	5	6
Not in labour market	7	8

Transition time periods

Labour market status was measured at three points 12 months apart, i.e. September 1995, September 1996 and September 1997. This resulted in the following two time periods for measuring earnings transitions:

- September 1995 and September 1996
- September 1996 and September 1997

For each time period, only transitions to work (whether full-time work or part-time work) are counted. For example, a respondent's transition from full-time work to not in the labour market in the first period will not be counted. However, the respondent's transition from not in the labour

Transition time periods
continued market to part-time work in the second period will be counted and have a transition status of “8”.

As noted previously, the estimation of the earnings equations is undertaken with both the PRG and Jobseeker samples of the SEUP data. The distribution of annual labour market transitions for each of the two SEUP subgroups is presented in table 3.2. Note that since labour market status was measured on three occasions, a person who remained in the survey until the third occasion could be involved in two transitions.

3.2 ANNUAL LABOUR MARKET TRANSITIONS—SEPTEMBER 1995–SEPTEMBER 1997

Transition group	Population Reference Group		Jobseekers	
	Males	Females	Males	Females
1 — Full-time work to full-time work	1 066	578	501	254
2 — Full-time work to part-time work	19	51	61	84
3 — Part-time work to full-time work	30	57	118	118
4 — Part-time work to part-time work	30	332	118	360
5 — Looking for work to full-time work	41	13	504	205
6 — Looking for work to part-time work	16	28	184	264
7 — Not in labour market to full-time work	26	26	88	85
8 — Not in labour market to part-time work	8	55	41	129

A respondent who was in full-time work at September 1995, September 1996 and September 1997 would have a transition status of 1 for both the first and second time period. Similarly, a respondent in part-time work at those dates would have a transition status of 4 for the first and second time period. These are the only instances when transition states can be the same for both time periods. Generally, the proportion of respondents for whom the type of transition was the same at the two times of measurement was higher in the PRG than in the Jobseeker group.

In analysing transitions, data were pooled across the two times of measurement and this resulted in the distribution presented in table 3.2. If the type of transition for a respondent was the same at the two times of measurement then the two observations were treated as being independent and both were recorded. In the reports of regression analyses that follow, ‘sample size’ refers to the total number of transitions recorded rather than to the total number of different respondents represented in a data set.

THE MODEL

The aim is to investigate, for each transition group, the effect of variables such as previous earnings, sex, and level of education on an individual’s earnings. As noted above, the disaggregation by transition group recognises that the level of and change in an individual’s earnings depends very much on the individual’s current and previous labour market status. In developing the model, weighted least squares estimation was used, with earnings as the dependent variable.

The general model is specified as:

$$Y_{it} = \alpha + \rho Y_{it-1} + \beta X_{it} + v_{it}$$

THE MODEL *continued*

where Y_{it} refers to the natural logarithm of weekly earnings of person i in year t , X_{it} is a vector of personal characteristics, and v_{it} the random error term. The general model thus assumes that the log of earnings in one year depends linearly on the log of earnings in the previous year as well as other personal characteristics¹. The above specification is a generalisation as several explanatory variables (including previous year's experience) have been entered in the model as transformations, e.g. quadratic form transformations have been applied to previous year's earnings and years in paid work, among others. Further, previous year's earnings is only included in the model for transition groups 1–4 as there is no information on this variable for transition groups 5–8.

EXPLANATORY VARIABLES

A number of variables were chosen so that their association with income could be investigated. A brief description of these variables is given in table 3.3.

One advantage with the SEUP data is the availability of data on actual (rather than imputed) labour market experience (i.e. years in paid work, years looking for work and years not in the labour market). It is expected that the inclusion of these variables — particularly years in paid work — could significantly improve our estimates. Miller (1992), for example, reports that in studies that use actual experience the wage advantage of males relative to females is largely eliminated.

1 The characteristics of other family members, particularly the spouse, could likewise have been included as an explanatory variable. However, the small sample size particularly of the Population Reference Group, as well as only a proportion of the sample having a spouse, negated the feasibility of this alternative.

3.3 LIST OF VARIABLES USED

<i>Variable</i>	<i>Description</i>
<i>Dependent</i>	
Earnings	A continuous variable, measuring the natural logarithm of usual weekly earnings (in September quarter, 1994 dollars)
<i>Explanatory</i>	
Sex	A categorical variable indicating the gender of the respondent (female or male)
Previous year's earnings and its square	A continuous variable, measuring the natural logarithm of usual weekly earnings (in September quarter, 1994 dollars), if any, one year before the time of measurement of the dependent variable
Years of work experience and its square	A continuous variable measuring number of years in paid work since first leaving full-time education
Years spent looking for work and its square	A continuous variable measuring number of years spent looking for work since first leaving full-time education
Years out of the labour market and its square	A continuous variable measuring number of years out of the labour market since first leaving full-time education
Industry	Categorical variable indicating the industry of the job for which the respondent worked the most hours, namely: agriculture/manufacturing/service = 1 / 2 / 3 Benchmark group: Service
Occupation	Categorical variable indicating the occupation of the job for which the respondent worked the most hours, namely: managerial or administrative/ professional or associate professional/ trade or advanced clerical/ intermediate or elementary clerical/ intermediate production, transport or labouring = 1 / 2 / 3 / 4 / 5 Benchmark group: Intermediate production, transport or labouring
Sector	Categorical variable indicating the sector of employment, namely: public sector/ private sector = 1 / 2. Benchmark group: Private sector
Multiple jobs	Categorical variable indicating whether the respondent had one job or more, namely: more than one income-producing job/only one income-producing job = 0 / 1 Benchmark group: Only one income-producing job
Educational attainment	Categorical variable indicating whether the respondent had: not reached the highest level of secondary school/ a vocational qualification/ an associate diploma, bachelors degree or higher/ completed the highest level of secondary school = 1 / 2 / 3 / 4 Benchmark group: Completed the highest level of secondary school
English-speaking proficiency	Categorical variable indicating whether the respondent's English speaking proficiency was low (i.e. did not have English as their first language or did not usually speak English at home and spoke English "well", "fairly well", "not well" or "not at all")/ high (i.e. had English as their first language and usually spoke English at home or spoke English "very well") = 0 / 1 Benchmark group: High level of English speaking proficiency
Employment handicap	Categorical variable indicating whether the respondent has: no condition which is a handicap to employment/ a condition which is a handicap to employment = 0 / 1 Benchmark group: No employment handicap
Marital status	Categorical variable indicating whether the respondent is: single/ married or in a de facto relationship = 0 / 1 Benchmark group: Married or in a de facto relationship

Variable means An examination of the characteristics of respondents (table 3.4) reveals that, within the Population Reference Group, one major difference between respondents in transition groups originating from full-time or part-time work (transition groups 1–4) and those originating from looking for work or not in the labour market (transition groups 5–8) is with respect to age. Those in transition groups 1–4 have an average age of between 37 and 38 years and have spent an average of about 21 years in the labour market since first leaving full-time education. In contrast, the mean age for those in transition groups 5–8 is 34 years for females and 30 years for males.

Focusing on females in the PRG, other differences (apart from age) include a greater proportion who are married or in de facto relationships. Also there is a lower educational attainment among those in transition groups 5–8. For example, more than half of females in transition groups 5–8 have not completed secondary school education while the corresponding figure for females in transition groups 1–4 is 36%. Correspondingly, 28% of females in transition groups 1–4 have a diploma or bachelor's degree while for females from transition groups 5–8 the figure is only 14%. The foregoing translates into differences in distribution by occupation where more females in transition groups 1–4 are in managerial and administrative, professional and trade/advanced service, while a greater proportion of females in transition groups 5–8 are in lower occupations, particularly production and transport.

The differences between transition groups 1–4 and transition groups 5–8 among PRG males are even more pronounced. The average age of males in transition groups 1–4 is 39 years compared with 30 years for males in transition groups 5–8. Some 70% of males in transition groups 1–4 are married, 61% have post-school qualifications, and only 10% have an employment handicap. The corresponding figures for males in transition groups 5–8 are 33%, 30% and 22% respectively.

Compared to the PRG, Jobseekers are relatively young with an average age of between 31 and 32 years with between 40 and 44% married or in a defacto relationship. Comparing the four broad categories of PRG (female transition groups 1–4, male transition groups 1–4, female transition groups 5–8 and male transition groups 5–8) with their Jobseeker counterparts, we find that, for the most part, Jobseekers are younger, fewer are married or in a defacto relationship, they have lower educational levels, and they have lower-level occupations than their PRG counterparts. The only exception to this is males in transition groups 5–8. For this subgroup, the characteristics of the PRG and male Jobseekers are similar although male Jobseekers have a higher proportion with no employment handicap, and a slightly higher proportion who are married or in a defacto relationship.

Another feature of the data worth pointing out is the proportion with two or more jobs. This is higher in general for Jobseekers (20% or more) than the PRG (11%) with two exceptions: PRG males in transition groups 5–8 (relatively high at 27%) and female Jobseekers in transition groups 5–8 (relatively low at 14%).

3.4 VARIABLE MEANS

Variable	Units	Population Reference Group				Jobseekers group			
		Trans. groups 1-4		Trans. groups 5-8		Trans. groups 1-4		Trans. group 5-8	
		Female	Male	Female	Male	Female	Male	Female	Male
Usual weekly earnings (UWE)	\$	461	703	265	404	324	461	284	378
Log UWE (t)									
Trans group 1	log \$	6.4	6.6	—	—	6.1	6.3	—	—
Trans group 2	log \$	5.8	5.7	—	—	5.6	5.7	—	—
Trans group 3	log \$	6.0	6.3	—	—	6.0	6.1	—	—
Trans group 4	log \$	5.6	6.0	—	—	5.6	5.7	—	—
Trans group 5	log \$	—	—	6.0	6.1	—	—	5.9	6.1
Trans group 6	log \$	—	—	5.3	5.6	—	—	5.5	5.6
Trans group 7	log \$	—	—	6.0	6.1	—	—	5.9	6.1
Trans group 8	log \$	—	—	5.2	5.1	—	—	5.3	5.3
All groups	log \$	6.1	6.6	5.6	6.0	5.8	6.1	5.7	5.9
Log UWE (t-1)									
Trans group 1	log \$	6.3	6.5	—	—	6.0	6.1	—	—
Trans group 2	log \$	5.9	6.1	—	—	5.9	6.0	—	—
Trans group 3	log \$	4.9	4.9	—	—	4.9	4.8	—	—
Trans group 4	log \$	5.3	5.6	—	—	4.8	4.8	—	—
All groups	log \$	5.9	6.4	—	—	5.3	5.8	—	—
Age	years	37.4	38.6	33.6	29.6	32.3	31.5	31.5	31.0
Labour market history	years	20.7	21.6	16.9	12.8	15.7	15.1	14.9	14.4
Working	years	16.0	20.9	9.7	9.6	10.7	12.5	8.1	10.1
Looking for work	years	0.4	0.4	0.7	2.2	1.6	2.2	2.8	3.6
Not in labour market	years	4.3	0.3	6.5	1.0	3.3	0.4	4.0	0.7
No employment handicap	%	92.1	91.7	90.0	78.5	89.9	87.5	88.9	87.7
High level of English-speaking proficiency	%	96.0	94.6	93.6	92.6	93.9	92.7	93.2	88.4
Married or in a defacto relationship	%	62.9	70.0	66.2	32.8	44.4	41.8	40.5	39.4
Multiple jobs	%	11.5	11.5	10.9	27.0	19.5	27.7	13.7	25.4
Private sector	%	78.0	76.6	81.8	80.2	78.4	86.8	83.5	85.3
Education									
Not completed the highest level of secondary school	%	36.3	25.2	52.2	40.6	32.8	36.9	42.4	44.9
Completed the highest level of secondary school	%	14.9	14.2	16.9	29.3	22.9	19.4	20.3	21.7
Vocational qualifications	%	20.4	30.5	17.2	16.4	24.2	25.6	22.6	19.5
Associate diploma, bachelors degree or higher	%	28.4	30.2	13.7	13.8	20.1	18.1	14.7	14.0
Occupation									
Managerial administrative	%	2.9	8.1	0.0	0.3	0.9	2.5	0.2	1.0
Professional or associate professional	%	30.3	34.6	24.5	9.9	16.1	18.0	12.1	11.2
Trade or advanced clerical	%	13.9	21.5	8.3	20.9	8.5	20.1	6.4	22.5
Intermediate or elementary clerical	%	40.5	12.4	42.2	23.2	55.6	18.1	54.4	17.3
Intermediate production, transport or labouring	%	12.4	23.4	25.1	45.7	18.9	41.3	26.8	48.1
Industry									
Agriculture	%	1.7	1.4	2.2	0.3	1.1	6.0	2.8	5.5
Manufacturing	%	13.1	32.4	17.2	35.2	13.2	32.7	13.2	31.7
Services	%	85.2	66.2	80.7	64.6	85.7	61.3	84.0	62.8
Sample size	no.	988	1 091	122	90	770	737	681	811

— nil or rounded to zero (including null cells)

Note: All dollar values based on September 1994 prices.

ANALYTICAL TECHNIQUES

Weighted least squares estimation

The regression analyses undertaken in this section were based on weighted least squares estimation. The lagged dependent variable was an explanatory variable when the transition was from employment, i.e. when the respondent was in full-time work or part-time work the previous period and therefore had greater than zero earnings. For a time series, particularly if there is autocorrelation of the error terms, the presence of the lagged dependent variable as an explanatory variable would lead to biased and inconsistent parameter estimates (Ramanathan, 1995). However, the present data were not a time series since the dependent variable was measured at only one point in time and, accordingly, the error term in each regression model referred to only one point in time. Least squares estimation, under the usual assumptions concerning the distribution of the error terms, therefore produced unbiased and consistent parameter estimates. Weighted regression was used in all analyses, using the population weights allocated to respondents in each wave².

Transformation of UWE

As the distribution of UWE was positively skewed, the natural logarithm of this variable, denoted by LUWE, was used in all analyses.

Deletion of outlying observations

Before the analysis could be undertaken, a preliminary step was to delete any outlying observations that may have had a disproportionately large influence on parameter estimates and their precision. As a basis for the deletion of outlying observations, the following procedure was adopted. For each of the eight transition types, in combination with each sex and each sample group with LUWE as the dependent variable and with all possible explanatory variables in a weighted regression, an observation was deleted if its studentized residual exceeded the cut-off point specified by Rosner (1983). Three cycles of deletion were carried out in this manner.

EFFECT OF PREVIOUS EARNINGS

Previous year's earnings is expected to be a very important explanatory variable in explaining current earnings, particularly when the respondent is working and there is no change in labour market status — i.e. for transition groups 1 and 4. The results from all analyses in which LUWE was the dependent variable and previous year's earnings the only explanatory variable are shown in tables 3.5 and 3.6. Due to the small sample size for males in the Population Reference Group, transitions from full-time to part-time work and from part-time to full-time work were pooled across sexes for these transitions. For consistency, the data on Jobseekers for these transitions were also pooled.

² The weights were scaled to add to n so that all of the statistics produced by the analysis reflected the sample size rather than the population size, and so that appropriate tests of statistical significance could be carried out.

The results presented in these tables are made up of the following:

- the slope coefficient — this reflects the percent change in current year's log earnings in response to a one-unit change in previous year's log earnings. Dividing the slope coefficient by an average of previous earnings gives an approximation of percentage change (after multiplying by 100). In general, interpretation of coefficients as percentages assumes that the coefficient is multiplied by 100, as well.
- the intercept term — includes the effect of all other factors not taken into account by the explanatory variables in the regression. Taking females in transition group 1 as an example, the intercept of 1.58 measures the average log of earnings for females in that group with log of previous year's earnings equal to zero.
- the adjusted R^2 term – R^2 is a measure between 0 and 1 that indicates the percentage of variation in log earnings explained by the regression. The R^2 term was adjusted for 'degrees of freedom' so that the resulting adjusted measure is more comparable across equations having different numbers of explanatory variables.

Coefficients found to be statistically significant are indicated by asterisks. Unless otherwise indicated, we only discuss results on regression coefficients that are found to be statistically significant.

From tables 3.5 and 3.6 it can be seen that the returns to previous year's earnings — as indicated by the slope coefficients found to be statistically significant — are positive for all transition groups, for both females and males. This result confirms that there is a positive relationship between current and previous year's earnings.

In general the returns to previous year's earnings are highest for those remaining in full-time work (transition group 1) followed by those remaining in part-time work (transition group 4) particularly for males. For these groups, the effect of previous year's earnings on current earnings is understandably larger since the persons were in the same labour market category in both periods.

Comparing results for the two SEUP subgroups, the returns to previous year's earnings are generally higher for the PRG than for Jobseekers. This result is expected and reflects the fact that there is greater stability in earnings among the PRG. The only exception was for males whose transition was from part-time to part-time (transition group = 4). For this subgroup the returns to previous year's earnings were higher for Jobseekers than for the Population Reference Group, although it is hard to make a general conclusion as the sample size for the PRG was particularly low at 30.

The explanatory power of the equations, as indicated by a high R^2 , is relatively high considering that only one explanatory variable was included. This is true particularly for transition group 1 of the PRG (72% for females and 66% for males) and the Jobseeker group (52% for females and 36% for males), and to a lesser extent, transition group 4 for both SEUP subgroups.

EFFECT OF PREVIOUS EARNINGS *continued*

The analysis above has deliberately focused on the slope coefficient. We omit discussion of the intercept except to note that the intercepts are generally higher for those making transitions between full-time and part-time work (transition groups 2 and 3). For these groups the unexplained component is larger.

3.5 REGRESSION OF USUAL WEEKLY EARNINGS ON PREVIOUS YEAR'S EARNINGS—POPULATION REFERENCE GROUP, SEPTEMBER 1995–SEPTEMBER 1997

Transition group	Intercept		Slope		R ² (adj)		Sample size	
	Males	Females	Males	Females	Males	Females	Males	Females
1 Full-time work to full-time work	*2.086	*1.581	*0.688	*0.756	0.664	0.717	998	553
2 Full-time work to part-time work(a)	*7.885	*2.509	−0.399	*0.521	0.162	0.162	15	49
3 Part-time work to full-time work(a)	*6.170	*4.966	−0.003	*0.213	0.163	0.163	25	52
4 Part-time work to part-time work	*3.252	*1.325	*0.455	*0.757	0.271	0.584	30	304

(a) Because of the small number of observations the equations were estimated jointly for males and females for this group.

3.6 REGRESSION OF USUAL WEEKLY EARNINGS ON PREVIOUS YEAR'S EARNINGS—JOBSEEKERS, SEPTEMBER 1995–SEPTEMBER 1997

Transition group	Intercept		Slope		R ² (adj)		Sample size	
	Males	Females	Males	Females	Males	Females	Males	Females
1 Full-time work to full-time work	*3.222	*2.383	*0.489	*0.619	0.361	0.523	466	242
2 Full-time work to part-time work(a)	*4.523	*5.990	0.128	−0.137	0.000	0.000	55	76
3 Part-time work to full-time work(a)	*5.569	*5.329	*0.110	*0.135	0.078	0.078	103	107
4 Part-time work to part-time work	*1.934	*2.455	*0.606	*0.532	0.308	0.316	111	333

(a) Because of the small number of observations, the equations were estimated jointly for this group.

MEASURING THE EFFECT OF ALL EXPLANATORY VARIABLES

Pooling of data

When the remaining explanatory variables were added to previous year's earnings and the analyses reported in the previous section were repeated, the number of explanatory variables was often so large relative to the number of observations that the standard errors of the parameter estimates were very large. While the original intention was to estimate separate earnings equations for each of the eight transition groups, sample size constraints necessitated that the data be pooled across sex and transition type.

Pooling of data <i>continued</i>	<p>Data for the transitions labelled as transition group = 1, 2, 3 and 4, where it was possible to include previous year's earnings as an explanatory variable, were pooled including pooling of the data for males and females. Similarly, data for the transitions labelled as transition group = 5, 6, 7 and 8, for which previous year's earnings could not be included as an explanatory variable, were also pooled. Thus the data on eight transitions for males and eight for females yielded two data sets. With two samples (the PRG and Jobseeker group), this yielded four estimation data sets.</p>
Interactions among explanatory variables	<p>Checks were made to determine whether the effect of each explanatory variable was different for females and males. As a result, the model was formulated to obtain separate estimates for females and males on the following variables: previous year's earnings and its square, multiple jobs, occupation and marital status. Similarly, separate estimates of the effect of previous earnings on current earnings were obtained for transition groups 1 to 4.</p>
Effect of the inclusion of previous year's earnings on other variables	<p>A large proportion of individuals in the sample have stable earnings. Consequently, the inclusion of previous year's earnings as an explanatory variable increases the explanatory power of the equations as indicated by a high R^2, and make them good for prediction purposes. However, at the same time, its inclusion has implications regarding our estimates. Previous year's earnings, like current year's earnings, is affected by the same variables included in the regression although the values are lagged by one year. For many individuals there would be little change in the values of the explanatory variables for the current and previous year. Hence, the inclusion of previous year's earnings as an explanatory variable would diminish the reported effect of other explanatory variables as indicated by their regression coefficients.</p>

RESULTS

Statistical indicators The statistical indicators provided on the adequacy of the models are described as follows:

- The degree of statistical significance of the intercept and coefficients was based on the computed p-value (t). For the intercept and the continuous variables, this statistic is the probability value that provides a test of whether the parameter is zero, against the alternative that the parameter is non-zero, in the presence of the effects of all other variables. The higher the p-value, the lower the degree of statistical significance of the estimated coefficient. For the categorical variables, the p-value provides a test of the difference between the parameter at the level associated with the p-value and the parameter at the last level of the variable, in the presence of the effects of all other variables. The sample sizes for the regressions have an effect on the significance levels of the resulting regression coefficients. The lower the sample size, the smaller the likelihood of a coefficient being found to be statistically significant.
- R^2 (adjusted) is a value between 0 and 1 that measures the percentage of variation in log earnings explained by the regression; this measure is comparable across regressions with different explanatory variables as it has been adjusted for degrees of freedom.
- S^2 is the estimated error mean square, measuring the variability of the residual effects.

The regression coefficients should be interpreted as follows:

- The constant term includes the effect of all other factors not taken into account by the explanatory variables in the regression. It measures the average log earnings of the individual in the benchmark group—a male or female with no employment handicap, married or in a de facto relationship, having completed secondary school, with high level of English-speaking proficiency, working in the service industry, in the private sector, with an occupation in transport or production, having only one job, and with zero values for all continuous variables.
- The coefficient of a continuous independent variable should be interpreted as the percentage change in earnings in response to a one-unit increase in the variable. In the case of a categorical explanatory variable, the coefficient is a measure of the total difference in log earnings for alternative values of the variable.

Statistical indicators
continued

When interpreting the constant term — particularly when the regression includes continuous variables — one should keep in mind that the benchmark group in most cases will not be representative of the typical respondent as, by definition, the benchmark group has zero values for all continuous variables³. Clearly this condition would not hold for the greater proportion of respondents. With labour market history, for example, the typical respondent would have left full-time education some time ago and would have greater than zero values for years in paid work, years looking for work and/or years not in the labour market.

In comparing results across regressions for different broad transition groups or sexes, the coefficients of continuous variables are directly comparable. However, for categorical variables, while the benchmark group is defined the same way for every group, the average value of earnings for each benchmark group, upon which the coefficients are based, could differ.

In all cases, the discussion of the effect of changing the value of an explanatory variable includes the assumption that the values of all other explanatory variables are held constant.

The sample sizes used to estimate the models are shown in table 3.7 for every transition group. Note the far smaller sample sizes for transition groups 2 to 8 of the PRG, particularly for males, which could result in far lower significance levels. Further, as noted earlier, the inclusion of the lagged dependent variable could have negatively affected significance levels of other independent variables. In analysing the results, therefore, one should keep in mind that the estimated coefficients for all independent variables other than previous year's earnings indicate the additional effect of that variable on weekly earnings after taking into account the effect of previous year's earnings and the effects of all other explanatory variables.

Overall findings

Regression results are presented in tables 3.7 (sample size, intercept and coefficients on previous year's earnings) and 3.8 (all other variables). In general, the coefficient estimates reflect what might be expected of a human capital model. The equations have high predictive power and explain between 43% and 80% of the variance of log weekly earnings⁴. As a large proportion of individuals in the sample have stable earnings, even the inclusion of only one variable — previous earnings, as presented in the previous section — resulted in regression equations with a high R^2 . The inclusion of additional explanatory variables in the full model further increased the explanatory power and predictive ability of the equations.

3 An alternative approach would have been to use the mid value for the continuous variables as the omitted group, however we opted to follow the conventional approach.

4 Typical earnings equations for individuals (that do not include last year's earnings and actual experience as explanatory variables) explain only about a quarter to a third of the total variance in earnings.

3.7 REGRESSION RESULTS: INTERCEPTS AND COEFFICIENTS ON PREVIOUS YEAR'S EARNINGS (FULL MODEL)

Transition group	Intercept		Log of previous earnings		Log of previous earnings squared		Sample size	
	Males	Females	Males	Females	Males	Females	Males	Females
POPULATION REFERENCE GROUP								
1 Full-time to full-time	**12.4581	**10.3520	**−2.6083	**−2.0206	**0.2581	**0.2152	997	553
2 Full-time to part-time	**−49.5386	**11.2134	**18.3835	**−2.7762	**−1.5341	**0.2998	15	49
3 Part-time to full-time	**10.7709	1.1615	−1.9961	1.7480	0.2014	−0.1555	25	52
4 Part-time to part-time	**7.9727	**2.6741	−1.4169	0.2082	0.1782	0.0500	30	305
5 Looking to full-time	**5.6386	**5.0036	..	..	..	..	40	13
6 Looking to part-time	**5.0834	**4.1175	..	..	..	..	16	27
7 Not in labour market to full-time	**5.5409	**4.7445	..	..	..	..	26	26
8 Not in labour market to part-time	**4.3595	**3.5164	..	..	..	..	8	55
JOBSEEKERS GROUP								
1 Full-time to full-time	**11.3896	**9.0351	**−2.2395	*−1.6859	**0.2201	*0.1823	466	244
2 Full-time to part-time	−3.9943	**7.8681	2.9908	−0.8899	−0.2444	0.0603	55	76
3 Part-time to full-time	**5.6222	*3.9957	0.0256	0.5019	0.0056	−0.0400	103	107
4 Part-time to part-time	1.6097	**3.5496	0.7048	−0.0892	−0.0134	0.0584	110	333
5 Looking to full-time	**5.7072	**5.4020	..	..	..	..	494	203
6 Looking to part-time	**4.7977	**4.5389	..	..	..	..	184	260
7 Not in labour market to full-time	**5.6426	**5.3540	..	..	..	..	87	84
8 Not in labour market to part-time	**4.9618	**4.4061	..	..	..	..	41	127

.. not applicable

* Statistically significant at the 5% level.

** Statistically significant at the 1% level.

3.8 OTHER REGRESSION RESULTS

Characteristic	Log of usual weekly earnings			
	Population Reference group		Jobseekers group	
	Transition group 1–4	Transition group 5–8	Transition group 1–4	Transition group 5–8
Labour market history since first left full-time education				
Years in paid work	**0.0065	0.0253	**0.0238	**0.0195
Years in paid work squared	**−0.0002	−0.0002	**−0.0006	**−0.0004
Years looking for work	−0.0120	−0.0672	−0.0124	0.0056
Years looking for work squared	0.0003	0.0046	0.0003	−0.0010
Years not in labour market	−0.0052	−0.0086	−0.0133	−0.0102
Years not in labour market squared	0.0001	0.0007	0.0004	0.0003
Industry				
Agriculture	−0.0456	0.4599	−0.0965	0.0357
Manufacturing	0.0080	*0.2467	*0.0648	**0.1543
Service	—	—	—	—
Female occupation				
Managerial and administrative	**0.1788	no data	0.3170	0.8134
Professional	**0.1838	0.3070	**0.1954	**0.2193
Trade and advanced service	**0.1342	**0.6686	0.0134	*0.2168
Other service	**0.1200	**0.3583	**0.1692	**0.1376
Production and transport	—	—	—	—
Male occupation				
Managerial or administrative	0.0324	0.8654	0.2083	**0.5621
Professional or associate professional	0.0469	0.2398	0.0005	**0.2042
Trade or advanced clerical	−0.0520	−0.2770	**−0.1294	−0.0496
Intermediate or elementary clerical	−0.0032	−0.0321	−0.0341	0.0707
Intermediate production, transport or labouring	—	—	—	—
Sector				
Public	*0.0339	0.1988	**0.1246	−0.0093
Private	—	—	—	—
Two jobs—female				
More than one income producing job	−0.0444	**0.7129	**0.2399	**0.3574
Only one income producing job	—	—	—	—
Two jobs—male				
More than one income producing job	0.0258	0.0859	0.0245	**0.1849
Only one income producing job	—	—	—	—
Employment handicap				
An employment handicap	0.0173	−0.0502	−0.0297	−0.0843
No employment handicap	—	—	—	—
Educational attainment				
Not reached the highest level of secondary school	0.0044	0.0085	0.0546	−0.0377
Vocational qualification	0.0356	0.0519	**0.1449	0.0334
Associate diploma, bachelors degree or higher	*0.0429	0.2505	**0.2118	**0.2196
Completed the highest level of secondary school	—	—	—	—
English speaking proficiency				
Low	−0.0374	0.0288	0.0180	−0.0563
High	—	—	—	—
Marital status—female				
Single	0.0001	−0.0035	0.0283	0.0122
Married or de facto relationship	—	—	—	—
Marital status—male				
Single	0.0258	0.1396	0.0474	−0.0741
Married or de facto relationship	—	—	—	—
R-squared	0.8010	0.5440	0.6680	0.4870
s-squared	0.0738	0.2991	0.2093	0.3051
Sample size				
Females	959	121	760	674
Males	1067	90	734	806
All persons	2026	211	1494	1480

(a) ** Statistically significant at the 1% level.

* Statistically significant at the 5% level.

— nil or rounded to zero (including null cells).

Intercept term	<p>A separate intercept was estimated for each transition group, for both females and males (table 3.7). Starting with the transitions for females in the Population Reference Group, we find that the intercept terms for those remaining in full-time work (transition group 1) and those making a transition from full-time to part-time work (transition group 2) of 10.4 and 11.2, respectively, are much higher than the intercept terms for all other transition groups. Females originating from part-time work (transition groups 3 and 4) have the lowest intercept terms, while the rest (transition groups 5–8) fall somewhere in between.</p> <p>Comparing females from the PRG with female Jobseekers, the same pattern is apparent. That is, females originating from full-time work have the highest intercept terms, and those originating from part-time work, the lowest.</p> <p>Comparing findings for females from the PRG with males from the PRG, for nearly all transition groups, males in the benchmark group have higher intercept terms than females in the corresponding group⁵.</p> <p>As with the PRG, male Jobseekers have higher intercepts than female Jobseekers for nearly every transition group. Comparing Jobseekers with the Population Reference Group, the intercept terms of the former are (with one exception) higher than that of the latter.</p>
Previous year's earnings	<p>The regression equations were formulated so as to obtain coefficients on previous year's earnings and its square, for each transition group. It was assumed that the effect of previous year's earnings on the current year's earnings from full-time work, for example, would depend on whether previous earnings were from full-time or part-time work.</p> <p>We begin by describing the equation for the first transition group to give an example of how the results may be interpreted. We then proceed to compare coefficient estimates for this explanatory variable across different transition types and population groups, although due to sample size limitations for some transitions we only discuss results for those that remain in full-time work or remain in part-time work.</p> <p>The results on previous year's earnings include linear and quadratic terms⁶ and are better analysed graphically as shown in graphs 3.9 and 3.10. The graph shows the relationship between the dependent variable and previous year's earnings, for values of previous earnings (in natural log terms), ranging from 4 to 7. Note that the mean value of the log of previous year's earnings for both males and females is about 6, and this is equivalent to \$400.</p>

5 The only exception to this was transition group 2 where the intercept for males (-49.5) was far too low, and this was estimated based on a notably small sample size of 15.

6 Given that previous earnings is a major effect, in future work it would be interesting to explore alternative functions of this variable that may describe more accurately its changing effect on current earnings over time.

Previous year's earnings
continued

We expect a strong and positive relationship between current and previous year's earnings — the higher the previous year's earnings, the higher would current year's earnings be as well. In fact, the results show that the effect of previous year's earnings on current earnings also depends on the earnings level.

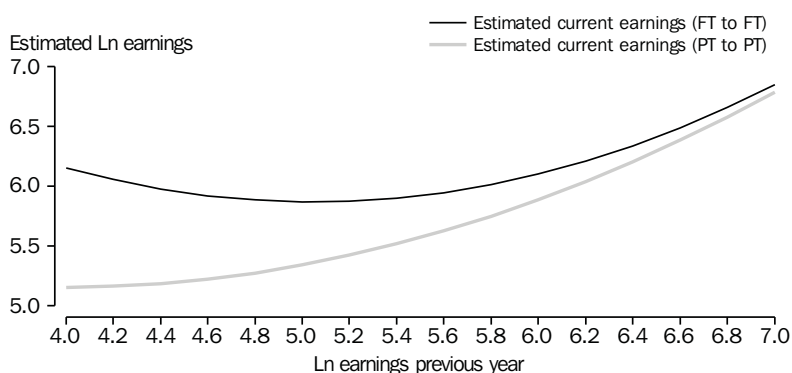
Starting with the first transition group (those remaining in full-time work), graph 3.9 shows that for PRG males with earnings below the middle of the range the relationship is flat or almost nil, while for those with previous year's earnings above the middle of the range, the relationship is consistent with the expectation of a positive relationship between current and previous year's earnings. For the group of males staying in part-time employment, the relationship between current and previous year's earnings is positive at all earnings levels although the effect becomes stronger the higher is one's earnings.

Graph 3.10 shows that for PRG females in the first transition group, the relationship is consistent with the result for males (no relationship for those with earnings below the middle of the range and positive relationship for those in the middle and upper earnings range. For the group of females staying in part-time employment, the relationship between current and previous year's earnings is positive at all earnings levels.

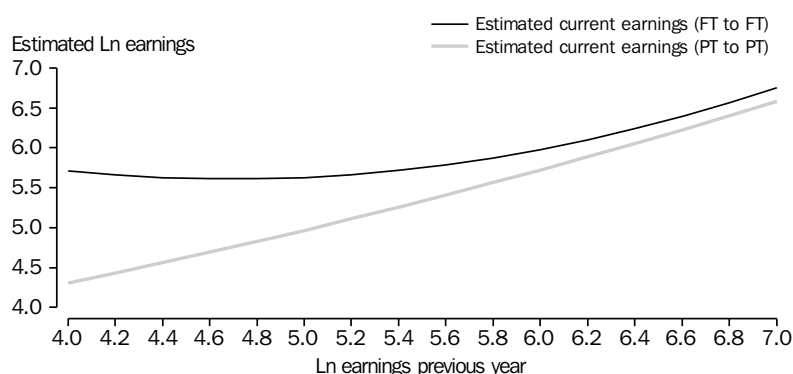
For the Jobseeker group, only the coefficients on those remaining in full-time work were statistically significant and for this group, we find the same pattern as for the PRG in the corresponding transition group, for both males and females.

In summary, our results show that the effect of previous year's earnings on current earnings varies according to transition type and earnings level. For those remaining in full-time work, we find no systematic relationship between current and previous year's earnings for those with earnings below the middle of the range, and a positive relationship for those on higher earnings. For those remaining in part-time work, however, the relationship between current and previous year's earnings is positive at all earnings levels. The foregoing results are consistent for both males and females in the general population as well as Jobseekers.

3.9 ESTIMATED LOG EARNINGS BY PREVIOUS YEAR'S LOG EARNINGS, Males—
Population Reference Group



3.10 ESTIMATED LOG EARNINGS BY PREVIOUS YEAR'S LOG EARNINGS, Females—Population Reference Group



Labour market history since
first left full-time education

The labour market history coefficients were estimated for the PRG and Jobseeker group by broad transition type (transition groups 1–4 and transition groups 5–8), thus yielding four estimates for each variable. Note that these were estimated for the pooled group of males and females with no allowance for differentiation of returns by sex. In typical earnings equations that use imputed (instead of actual) years of experience there is generally a need to allow for differences by sex to take account of possible discontinuity in years in paid work for females, but the availability of information on actual experience in the SEUP data mitigates this.

The coefficients on labour market history have the expected signs. That is, earnings are higher the more time one has spent in work and the less time one has spent looking for work or out of the labour market. These are however statistically significant only for years in paid work. The relationship between estimated log earnings and years of labour market experience in paid work is illustrated in graph 3.11, while the full set of coefficients was presented in table 3.8. Following convention, the variable is expressed as a quadratic and shows positive and increasing returns to experience in paid work, with the rate of increase declining across time.

For the PRG the coefficients were statistically significant only for transition groups 1–4 (the sample size for transition groups 5–8 was relatively small), while for Jobseekers all coefficients were significant. Interestingly, Jobseekers in transition groups 1–4 have higher returns to years of labour market experience than the PRG⁷. Looking at the

⁷ In earnings equations that use imputed years of experience, other research has found that advantaged groups (such as males when compared to females, or white males compared with black males) get higher returns to experience than the corresponding disadvantaged group (Juhn, Murphy and Pierce 1993; Buckinsky 1994).

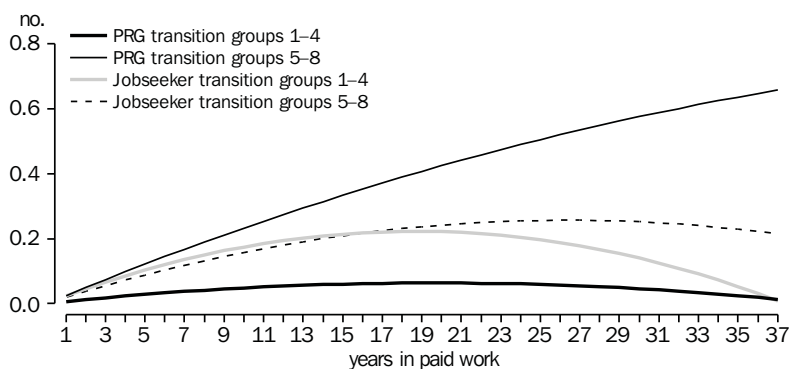
Labour market history since first left full-time education
continued

characteristics of the PRG and Jobseeker group with respect to average years in paid work, PRG respondents in transition groups 1–4 have 19 years of experience while the PRG in transition groups 5–8 are more similar to Jobseekers, with an average of only 10 years in paid work.

The coefficients on years spent looking for work and years spent out of the labour market are generally negative (although statistically insignificant), indicating that years spent looking for work or out of the labour market decrease average earnings. For example, for transition groups 1–4 of the PRG, the results indicate that earnings decline by 1.2% for every year spent looking for work, and by 0.5% for every year spent out of the labour market. The only exception to this general result was the Jobseekers in transition groups 5–8, which had a positive coefficient on years looking for work.

In summary, returns to years in paid work are positive and show increasing returns with additional years of experience in paid work, with the rate of increase declining across time. Correspondingly, returns to years looking for work and not in the labour market are negative — the longer one stays in either of these two labour market states, the lower one’s earnings.

3.11 RETURNS TO YEARS IN PAID WORK(a)



(a) Based on regression coefficients on experience in paid work from table 3.8.

Employment handicap

The coefficients on employment handicap are negative for nearly all groups (although none are statistically significant), indicating that those with an employment handicap receive lower average weekly earnings than persons with no employment handicap. One noticeable difference in the distribution of respondents is the far greater proportion of males from the PRG in transition groups 5–8 having an employment handicap (21%) compared to the proportion for females and males in other groups (8-11%).

Highest educational attainment

Higher educational attainment is associated with higher returns. Starting with transition groups 1–4 of the PRG, the coefficients for those with a vocational qualification and those with an associate diploma, bachelor degree or higher conform with expectations that those with higher levels of education than the benchmark group (those who completed secondary

Highest educational attainment <i>continued</i>	<p>school) would get higher returns to their education, at 3.6% and 4.3% more, respectively. The corresponding figures for the same transition groups for Jobseekers are even higher at 14.5% and 21.2% respectively.</p> <p>The coefficients for transition groups 5–8 are broadly similar, although most are not statistically significant. Respondents from the PRG with vocational qualifications earn 5.2% more while those with an associate diploma, bachelor degree or higher receive 25.0% more. The corresponding figures for respondents from the Jobseeker group are 3.3% and 22.0% respectively.</p>
English-speaking proficiency	None of the coefficients on this variable are statistically significant with this partly due to the fact that only a very small percentage of respondents have a low English-speaking proficiency (4-12%). We expect that individuals having limited English-speaking proficiency would get lower returns and this is true for PRG transition groups 1–4 (3.7% earnings penalty) and Jobseeker transition groups 5–8 (5.6% earnings penalty).
Marital status	None of the coefficients are statistically significant although the results for some unmarried subgroups (females from the PRG in transition groups 1–4, all females from the Jobseeker group, and male Jobseekers in transition groups 5–8) conform to expectation. Females who are married or de facto would be expected to have negative returns and males who are married or de facto would be expected to have positive returns, due to the traditional differences in the economic roles of male and female members of couples.
Sector of employment	Those working in the public sector receive higher returns. In particular, transition groups 1–4 of the PRG earn 3.4% more than those in the private sector, while the corresponding percentage for Jobseekers is higher at 12.5%.
Multiple jobs	For both females and males, those holding multiple jobs receive higher weekly earnings than those only working at one job. This is true particularly for females for whom the coefficients were statistically significant for nearly all transition groups. This stronger effect could be because, on average, females work shorter hours than males.
Occupation	<p>The effect of occupation is consistent with the expectation that the higher the occupation level, the higher the returns or associated coefficients. Starting with females from the PRG in transition groups 1–4, those in the top two occupation categories (managerial and administrative, and professional) earn about 18% more than those in production and transport, while those in trade and advanced service and other services earn about 12-13% more. All coefficients are statistically significant.</p> <p>Comparing regression coefficients between transition groups 1–4 and 5–8 of females from the PRG, it is noticeable that the latter have far higher coefficients. Rather than interpreting this as higher returns, it is more plausible to conclude that females in the benchmark category (production and transport) in transition groups 5–8 receive lower average</p>

Occupation *continued*

earnings, such that those in other occupations receive proportionately more. The coefficients for females in transition groups 5–8 were also based on a much smaller sample ($n=121$ while the corresponding number for transition groups 1–4 is $n=959$).

Comparing results between females from the PRG and Jobseeker group, most of the coefficients (except for those on managerial and administrative, and trade and advanced service for transition groups 1–4) were statistically significant. The coefficients for the Jobseeker group look broadly similar with those of the PRG, although those for transition groups 5–8 of female Jobseekers are lower than those for females from the PRG in the same category.

Turning to the results for males, hardly any of the coefficients are statistically significant, although higher-level occupations still get higher returns. There is a clear distinction in returns to occupation between males and females: while females working in trade and advanced service and other services earn more than those working in production and transport (holding all other factors constant), the reverse is true for males and this holds true for all transition groups, for both PRG and Jobseeker groups. This difference in returns may be related to segmentation by gender within each of the broad occupation groups. However sample size limitations precluded the use of more detailed employment categories using the current data set.

Industry

The coefficients for transition groups 1–4 of the PRG indicate that those working in the manufacturing industry receive marginally higher weekly earnings (0.80% more) than those working in the service industry (the benchmark) although the coefficient is not statistically significant. The corresponding percentage for transition groups 5–8 is much higher at 25%. One way to interpret this is that those working in the service industry in transition groups 5–8 earn far less than those in the same industry from transition groups 1–4 so, by comparison, those in the manufacturing industry in transition groups 5–8 earn proportionately more relative to a lower base.

Coefficients on the manufacturing industry for the Jobseeker group indicate that those in transition groups 1–4 earn 6.5% more than those in the service industry, while the corresponding figure for transition groups 5–8 is higher at 15.4%. The greater difference in coefficients between transition groups 1–4 and 5–8 of the PRG, relative to the Jobseeker group, indicate that the gap in average returns to industry between these two groups may be wider for the PRG.

SECTION 4

CONCLUSION

The first part of the paper described the mobility of earnings of the general population based on the measure of usual weekly earnings. Key findings include the following:

- Overall there is general stability in earnings across all earnings deciles. Although most people changed their earnings decile after a one year interval, the proportion of people in each decile who experienced an income shift of more than one decile was only 10-30%. Correspondingly, 70-90% of people in each decile experienced no or only a small income shift, that is, stayed in their current decile or moved to an adjacent decile.
- There is far greater stability in earnings at the upper end of the earnings scale, with 93% of those in the top 3 deciles staying in their decile or moving to an adjacent decile over a one-year period. This is due, at least in part, to the fact that the decile classes are wider at the income extremes and narrower at middle incomes.
- After defining respondents falling in the bottom 3 deciles for each wave as the “low earnings group” and the remainder as the “higher earnings group, we looked at the pattern of changes in earnings over the three years for which data are available. Of the total sample of the general population, 9% had persistently low earnings while 72% had persistently higher earnings. Correspondingly, 28% of the general population had low earnings at least once over the three-year period.
- Looking at the characteristics of the different earnings groups, we find that relative to the overall sample:
 - (a) Those with persistently low earnings have greater proportions of persons who are female, are part-time workers, have not completed secondary school, are unmarried, have less than excellent English speaking ability, have an employment handicap, and are working at middle and lower level clerical or transport and production occupations.
 - (b) For those making a transition from low to higher earnings, there were changes associated with movement from part-time to full-time work, improvement in educational attainment, and changes in industry and occupation.
 - (c) For those making a transition from higher to low earnings, the most apparent changes were those from full-time to part-time work, and movement to lower level occupations.

In the second part of the report, earnings equations were estimated. Separate estimations were made for those who were employed the previous period (transition groups 1 to 4) and those who were not (transition groups 5 to 8). Regressions were run for both the Population

CONCLUSION *continued*

Reference Group and Jobseekers samples of the SEUP. Key points regarding the results from the regression equations are:

- Generally the coefficient estimates reflect what might be expected of a human capital model, and the equations have a good fit, explaining between 54% and 80% of the variance of log weekly earnings for the PRG, and between 49% and 67% for the Jobseeker group.
- A key finding for both the PRG and Jobseeker group is that the effect of previous year's earnings on current earnings varies on one's earnings level
 - For males and females remaining in full-time work, there was a positive relationship between current and previous year's earnings for those with earnings in the middle and upper ranges, and particularly for males. The effect becomes stronger the higher is one's earnings;
 - For those with earnings below the middle of the range, however, no systematic relationship was found between current and previous year's earnings; and
 - Finally, for males and females remaining in part-time work, the relationship between current and previous year's earnings is positive at all earnings levels.
- The availability of data on actual labour market experience enabled us to estimate returns to experience for the pooled group of males and females. As expected, the coefficients on years in paid work are positive and show increasing returns with additional years of experience, with the rate of increase declining across time. Correspondingly, returns to years spent looking for work and not in the labour market are negative — the longer one stays in either of these two labour market states, the lower one's earnings.
- The results with respect to occupation, multiple jobs, educational attainment, English-speaking proficiency, employment handicap and marital status are as expected. Relative to the benchmark group and taking all other factors constant, higher earnings accrue to individuals at higher occupation levels, those with multiple jobs, those with post-school educational qualification, those with high levels of English-speaking proficiency, those with no employment handicap, and to unmarried (relative to married) females.
- Those working in the public sector receive higher returns than those in the private sector, and the same holds true for those working in the manufacturing industry relative to those in agriculture and services, taking all other factors constant.

APPENDIX A

MOVEMENTS IN EARNINGS

A1 TWO-YEAR MOVEMENT BETWEEN EARNINGS AND LABOUR MARKET GROUPS(a)

<i>Status in first period—September 1995</i>	<i>Status in subsequent period—September 1997</i>					
	<i>High earnings</i>	<i>Medium earnings</i>	<i>Low earnings</i>	<i>Looking for work</i>	<i>Not in labour market</i>	<i>Total</i>
	%	%	%	%	%	%
FEMALES						
High earnings	64.5	30.0	5.5	0.0	0.0	100.0
Medium earnings	2.0	80.0	8.0	0.8	9.2	100.0
Low earnings	2.9	22.0	57.0	5.5	12.6	100.0
Looking for work	0.0	12.2	21.5	41.7	24.6	100.0
Not in labour market	0.0	8.3	14.9	7.2	69.6	100.0
MALES						
High earnings	79.5	16.1	1.3	0.5	2.5	100.0
Medium earnings	14.3	74.7	3.9	5.6	1.4	100.0
Low earnings	6.4	70.6	12.5	7.9	2.6	100.0
Looking for work	0.6	45.8	8.2	33.4	12.0	100.0
Not in labour market	3.3	17.4	18.3	21.8	39.3	100.0
PERSONS						
High earnings	76.7	18.7	2.1	0.4	2.0	100.0
Medium earnings	8.5	77.2	5.9	3.3	5.1	100.0
Low earnings	4.0	36.5	43.8	6.2	9.6	100.0
Looking for work	0.4	31.8	13.7	36.9	17.2	100.0
Not in labour market	0.8	10.4	15.7	10.6	62.5	100.0

(a) Excludes self-employed.

A2 ONE-YEAR MOVEMENT BETWEEN USUAL WEEKLY EARNINGS DECILES

Decile at end of Wave 1—September 1995	Decile at end of Wave 2—September 1996										Total
	1	2	3	4	5	6	7	8	9	10	
	%	%	%	%	%	%	%	%	%	%	
ALL EMPLOYEES											
1	52.8	15.4	11.8	4.1	0.0	13.2	2.0	0.7	0.0	0.0	100.0
2	11.3	45.6	18.2	10.3	2.0	4.5	4.8	0.5	0.9	2.0	100.0
3	0.5	11.9	41.5	12.6	13.0	9.4	2.6	5.7	1.1	1.8	100.0
4	0.4	3.3	19.4	34.3	23.9	11.8	3.2	1.8	1.4	0.5	100.0
5	0.4	4.2	6.7	26.7	31.9	13.5	8.6	5.8	2.3	0.0	100.0
6	0.3	0.0	2.0	5.9	30.2	29.4	16.9	6.7	4.5	4.2	100.0
7	1.4	0.6	3.5	4.4	4.4	23.3	35.4	16.8	6.8	3.6	100.0
8	0.6	0.0	1.0	0.0	0.0	3.4	25.0	42.3	23.8	4.0	100.0
9	0.7	0.0	0.0	1.2	2.0	0.8	4.2	20.4	58.5	12.2	100.0
10	0.0	0.0	0.0	0.3	0.2	0.7	0.0	2.7	8.0	88.1	100.0
EMPLOYED FULL-TIME THROUGHOUT(A)											
1	0.0	16.3	20.9	46.1	0.0	16.7	0.0	0.0	0.0	0.0	100.0
2	0.0	18.5	25.2	22.6	3.9	10.4	14.4	1.4	1.2	2.5	100.0
3	0.0	4.2	42.7	20.7	9.6	13.8	1.6	6.7	0.7	0.0	100.0
4	0.5	0.9	15.4	35.5	24.7	13.9	3.6	2.6	2.0	0.7	100.0
5	0.0	0.0	4.6	28.1	36.4	15.9	4.7	7.3	3.0	0.0	100.0
6	0.0	0.0	0.9	2.2	27.2	33.1	17.9	8.6	5.7	4.5	100.0
7	0.0	0.0	0.9	4.3	4.4	22.4	37.0	19.2	7.8	4.1	100.0
8	0.0	0.0	0.9	0.0	0.0	2.6	20.8	46.8	26.5	2.4	100.0
9	0.0	0.0	0.0	1.1	0.4	0.8	4.0	21.0	59.5	13.3	100.0
10	0.0	0.0	0.0	0.4	0.2	0.8	0.0	2.9	6.2	89.5	100.0

(a) Having the same employment type in all three Waves. Deciles for this group were defined based on the same decile groupings as for the overall sample.

A3 TWO-YEAR MOVEMENT BETWEEN USUAL WEEKLY EARNINGS DECILES

	Decile in subsequent period—September 1997										Total
	1	2	3	4	5	6	7	8	9	10	
Decile in first period—September 1995	%	%	%	%	%	%	%	%	%	%	
ALL EMPLOYEES											
1	42.9	21.1	8.8	3.0	2.6	5.4	11.4	0.0	5.0	0.0	100.0
2	14.0	27.5	15.7	9.0	13.6	8.2	1.9	5.6	3.6	0.9	100.0
3	5.8	10.7	33.9	16.8	18.3	5.0	9.5	0.0	0.0	0.0	100.0
4	6.4	2.0	15.5	30.0	27.0	10.0	5.5	0.8	2.3	0.6	100.0
5	6.3	2.6	9.3	21.6	27.4	17.7	1.7	8.0	4.8	0.8	100.0
6	2.5	2.4	6.0	4.4	21.7	31.1	17.8	7.2	3.0	4.1	100.0
7	0.6	1.0	2.4	3.9	6.8	19.4	30.1	23.4	5.7	6.8	100.0
8	0.0	0.9	0.3	0.6	0.6	7.3	15.8	49.3	19.9	5.3	100.0
9	2.5	0.5	0.3	2.2	0.7	1.7	10.0	16.8	51.6	13.7	100.0
10	0.0	1.1	0.2	0.4	0.5	0.4	0.4	2.5	12.3	82.1	100.0
EMPLOYED FULL-TIME THROUGHOUT(a)											
1	0.0	0.0	20.9	15.7	46.7	16.7	0.0	0.0	0.0	0.0	100.0
2	0.0	1.9	24.3	1.8	20.7	22.9	5.4	15.7	5.0	2.4	100.0
3	0.0	3.6	36.1	20.5	19.2	7.1	13.5	0.0	0.0	0.0	100.0
4	4.0	0.0	15.0	33.4	26.0	10.3	6.6	1.0	3.0	0.8	100.0
5	2.3	0.0	6.2	26.0	31.9	17.5	1.7	9.6	4.6	0.3	100.0
6	0.0	0.0	0.0	3.0	24.7	34.2	20.6	8.9	3.7	5.0	100.0
7	0.0	0.0	0.9	4.2	4.5	18.7	32.6	25.5	6.2	7.4	100.0
8	0.0	0.0	0.0	0.0	0.6	6.6	17.1	49.1	20.9	5.8	100.0
9	0.0	0.0	0.0	0.5	0.0	1.8	10.6	17.9	54.6	14.5	100.0
10	0.0	1.2	0.2	0.4	0.5	0.4	0.4	2.6	12.5	81.9	100.0

(a) Having the same employment type in all three Waves. Deciles for this group were defined based on the same decile groupings as for the overall sample.

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